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A NEW NEOTROPICAL GENUS OF CHOREUTIDAE (LEPIDOPTERA: SESIOIDEA)

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Abstract.—**Zodia**, new genus, is described for five Neotropical species of Choreutidae including: *Zodia plutusana* (Walker) (=*aeneigutta* Felder and Rogenhofer, new synonymy), *Z. scintillana* (Walker), *Z. ochripalpis* (Meyrick), *Z. rutilella* (Walker), and *Z. chrysosperma* (Meyrick).

Several species included in the heterogeneous "*Simaethis*" or described in *Brenthia* and *Choreutis* have been noted (Heppner, 1977) to belong to a new genus related to *Hemerophila*. The following generic description and revision of the genus are presented here to make the new genus name available for an upcoming publication on the world fauna of the Sesioidea (Heppner and Duckworth, *in press*).

Zodia Heppner, NEW GENUS

Type-species: *Simaethis plutusana* Walker, 1863.

Description.—Adults small, 4–6 mm forewing length. *Head:* Labial palpus upturned, with apical segment slightly shorter than middle segment, tapered; basal and middle segments subequal, relatively smooth scaled. Maxillary palpus small, 2-segmented. Pilifer large. Haustellum well developed, basally scaled. Ocellus large. Vertex relatively smooth scaled, with posterior tufts. Antenna moderate, only somewhat longer than ½ forewing length; long ventral setae in males, short ventral setae in females. *Thorax:* Forewing (Fig. 2) broad with somewhat acute apex (more acute in ♂ than ♀); pterostigma very long, 4/5 of costal margin; R_1–R_4 to costa with R_1 divergent from radius before mid-wing; R_2–R_5 divergent at end of cell; R_5 to just below apex; M_2 closer to M_3 than to M_1; chorda absent; CuA_1 from near base of M_3; CuA_2 distant, diverging 1/3 from end of cell; CuP fold well developed from 1/3 of wing to wing margin; A_1 + A_2 to tornal margin. Hindwing triangular with acute apex and sharply rounded tornal margin; radius to apex; M_1–M_3 equally spaced with M_3 long stalked to CuA_1; CuA_2 distant from CuA_1; CuP fold well developed near margin; anal field broad; A_1 + A_2

Fig. 1. *Zodia plutusana*, ♀, Amazonas, Brasil (paralectotype of *aeneigutta*) (NHMV).

with basal fork, widely separated from A_3; A_4 vestigial. Legs unmodified. *Abdomen:* Male genitalia with uncus absent; anal tube well developed and formed with lateral socius-like enfolding; gnathos absent; valva simple, setaceous, sometimes with an apical claw-like hook; valva with large basal setal area on costal margin curvature, sometimes also on sacculus; vinculum small, usually triangular; saccus absent; anellus as Y-shaped collar; aedeagus short, with phallobase and spicules on vesica; cornutus absent. Female genitalia with ovipositor short, floricomous with setaceous pads; ostium bursae on intersegmental membrane between sternites 7 and 8; ductus bursae long, membranous, sclerotized near ostium; bursa copulatrix ovate, spiculate, with or without small bulbous accessory bursa; signum as large row of teeth-like spines or smaller spines.

Larva and pupa.—Unknown.

Biology.—Unknown.

Distribution.—Neotropical, from Costa Rica to the Amazonian areas of Brasil and Peru.

Diagnosis.—*Zodia* is similar to *Hemerophila*, especially in wing venation and head morphology, but is relatively distinct in genital characters, especially the unusual anal tube arrangement of the male. The pterostigma of *Zodia* is very large and appears to be the longest in Choreutidae.

The genus comprises five species having similar wing maculation and

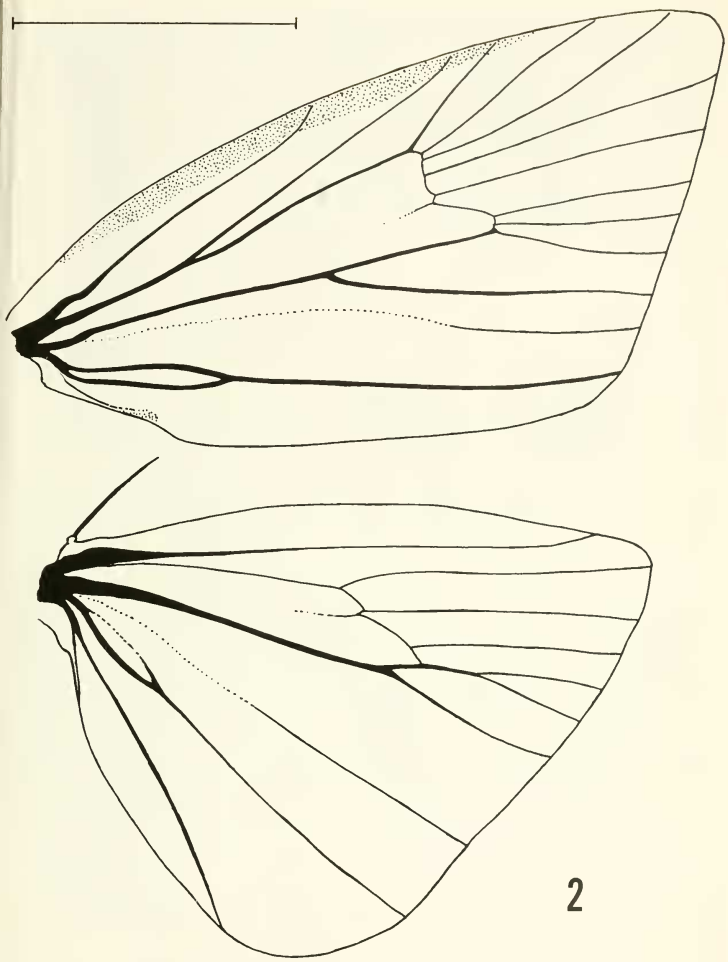
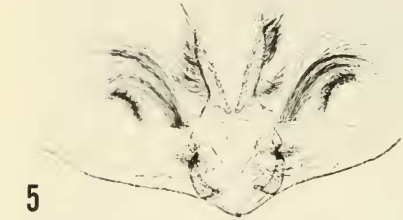
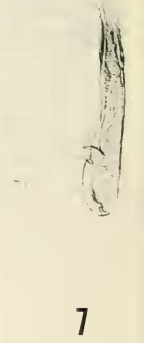


Fig. 2. *Zodia plutusana*, ♂, Costa Rica (USNM), wing venation (slide USNM 77838) (scale = 2 mm).





Figs. 3–4. *Zodia plutusana* (Walker), ♂ lectotype (BMNH), Amazonas, Brasil (slide BM 20224). 3, Male genitalia. 4, Aedeagus (enlarged). Fig. 5. *Zodia scintillana*, ♂ lectotype (BMNH), Amazonas, Brasil (slide BM 20225) [anal tube split]. Figs. 6–7. *Zodia chrysosperma*, ♂ lectotype (BMNH), Amazonas, Brasil (slide JFGC 6550). 6, Male genitalia. 7, Aedeagus (reduced scale).

genitalia, as far as is known. Available specimens are few in number except for a series recently collected in Costa Rica. Tefe, Brasil, is the type-locality of four of the five species in the genus.

Etymology.—*Zodia* is Greek for "little animal."

Zodia plutusana (Walker), NEW COMBINATION
Figs. 1–4, 8

Simaethis plutusana Walker, 1863:453.
Choreutis aeneigutta Felder and Rogenhofer, 1875:6 (pl. 138, fig. 2), NEW SYNONYMY.
Simaethis plutana Meyrick, 1913:37, emendation.
Brenthia aeneigutta. Meyrick, 1913:38.

This species is the largest of the genus and is mainly distinguishable by the genitalia, having very few setae on the male valval costal margin, and a female signum with small spines.

Description.—Size 4.5–6.0 mm forewing length. *Head:* Fuscous with some ochreous on posterior corners and metallic green iridescence on frons. Labial palpus ochreous with some tan on apex. Antenna fuscous with alternating white segments. *Thorax:* Dorsally fuscous with metallic gold iridescent petagia; ventrally metallic green iridescent on mesothorax, less so on metathorax. Forelegs pale ochreous and fuscous, other legs mostly fuscous with white bands on tarsal segments. Forewing (Fig. 1) fuscous with metallic gold to green iridescent (depending on light angle) spots near base and at ⅓ from base along anal margin; silvery white spots (with some green sheen) mostly elongate, from costal margin at ⅓ and ⅔ from base, at end of cell, near tornal angle, and along tornal margin ⅔ from base; small white spots along distal margin, 4 near apex and 1 on tornus; fringe dark fuscous; venter uniform pale fuscous with distal costal white mark. Hindwing unmarked pale fuscous. Fringe bi-colored with base dark fuscous and outer layer white. Venter uniform pale fuscous. *Abdomen:* Fuscous with silvery scale row on posterior edge of each segment; venter slightly paler. Male genitalia as described for the genus, with the valva (Fig. 3) relatively elongate and dorsal margin only slightly curved and with few scale setae on the margin; no hook on valval apex. Aedeagus as for genus (Fig. 4). Female genitalia as described for genus (similar to *Z. ochripalpis*); apophyses very short; ductus bursae very long, somewhat coiled near bursa; no apparent accessory bursa; signum a large linear spicule field (Fig. 8) of teeth-like spines.

Type-locality.—Ega [=Tefé], Amazonas, Brasil [*plutusana*]; Amazonas, Brasil [*aeneigutta*].

Types.—Lectotype ♂ [*plutusana*] (BMNH), present designation, labelled as follows: LECTOTYPE [round, purple edge]/Type [round, red edge; reversed]/Ega [round blue label; "57,20" on reverse side]/*Simaethis plutusana*

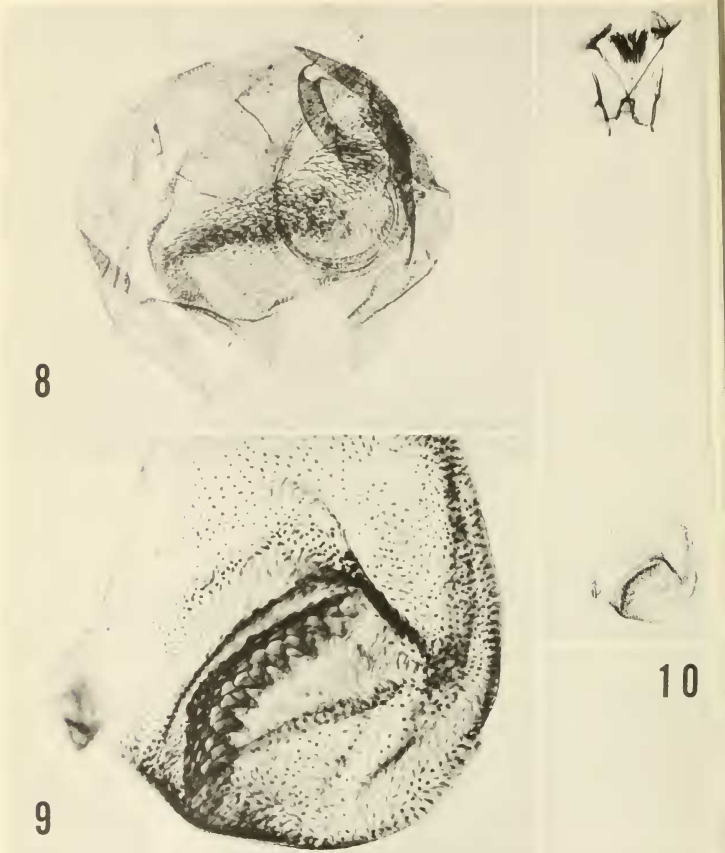


Fig. 8. *Zodia plutusana*, ♀ bursa and signum, Costa Rica (USNM) (slide USNM 77714). Figs. 9–10. *Zodia ochripalpis*, ♀ holotype (BMNH), Pará, Brasil (slide JFGC 6549). 9, Signum. 10, Bursa and signum. (Photos 9 and 10 courtesy of the British Museum (Natural History) and from Clarke, 1969.)

Wkr. ♂ [Durrant label]; TYPE ♂ 1857.20; 9. *Simaethis plutusana* Wkr. 1863, 453/LECTOTYPE ♂, *Simaethis plutusana* Wlk., By Heppner '76/ B.M. ♂; Genitalia Slide; No. 20224. *Paralectotype:* 1 ♂, as above but labelled paralectotype (BMNH).

Lectotype ♂ [*aeneigutta*] (BMNH), present designation, labelled as follows: LECTOTYPE [round, purple edge]/Type [round, red edge; reversed]/302/*Sim., plutosa* [sic], V. aff./Novara CXXXVIII, f.2; *Choreutis*?; *aeneigutta*; Amaz. ♂ n./TYPE [Durrant label]/FELDER'S TYPE [reversed]/LECTOTYPE ♂; *Choreutis aeneigutta* F. & R.; By Heppner '76/B.M. ♂; Genitalia slide No. 20244. *Paralectotypes:* 2 ♀, same data as lectotype but labelled paralectotypes (NHMV).

Material examined.—*Costa Rica*: Turrialba, Cartago Prov., 17–21 Feb 1965 (4 ♂, 6 ♀), 22–28 Feb 1965 (1 ♂, 1 ♀), 13–17 Mar 1965 (2 ♂), S. S. & W. D. Duckworth (USNM). *Panama:* Barro Colorado Is., Canal Zone, 11 Feb 1929 (1 ♂), S. W. Frost (USNM).

The available specimens show a wide distribution in the northern Neotropical region but present a large gap in distribution records between Panama and the Amazon River of Brasil.

Zodia scintillana (Walker), NEW COMBINATION
Fig. 5

Simaethis scintillana Walker, 1863:454.

This species is very similar to the preceding but in the male genitalia has a more arched dorsal edge on the valva and a larger setal area.

Description.—Size 5–6 mm forewing length. Maculation is the same as in *Z. plutusana*. Male genitalia are as in *Z. plutusana* but the valva is broader, with a more arched dorsal margin, with a well-developed setal field on the curvature (Fig. 5). Aedeagus as for the genus. Female genitalia unknown.

Type-locality.—Ega [=Tefé], Amazonas, Brasil.

Types.—Lectotype ♂ (BMNH), present designation, labelled as follows: LECTOTYPE [round, purple edge]/Ega [round, blue label with "58.6" on reverse side]/*Simaethis scintillana* Wkr.; 28/454; PARATYPE 2/2 [Durrant label]/LECTOTYPE ♂; *Simaethis scintillana* Wlk.; By Heppner '76/B.M. ♂; Genitalia Slide No. 20225 (head missing). The specimen labelled as paratype by Durrant is chosen as lectotype because the other syntype has no abdomen. *Paralectotype:* 1 ♂, same data as lectotype (BMNH) (no abdomen).

Material examined.—The two syntypes are the only known specimens.

Zodia ochripalpis (Meyrick), NEW COMBINATION
Figs. 9–10

Brenthia ochripalpis Meyrick, 1920:335.

This species is similar to the preceding two species; but in the female genitalia, the signum consists of very large teeth-like spines.

Description.—Size 4–5 mm forewing length. Maculation the same as in *Z. plutusana*. Male genitalia unknown. Female genitalia (Fig. 10) similar to *Z. plutusana* but with longer apophyses, especially the posterior pair; ac-

cessory bursa well developed; signum a linear arrangement of large teeth-like spines (Fig. 9).

Type-locality.—Rio Trombetas, Pará, Brasil.

Type.—Holotype ♀ (BMNH), data as above, Sept, H. H. Parish; B. M. Genitalia Slide JFGC 6549.

Material examined.—In addition to the holotype there are two specimens from Peru tentatively identified as conspecific. *Peru:* Jurimaguas [=Yurimaguas], Edo. Loreto, 20 Mar, H. H. Parish (1 ♂, BMNH; 1 ♂, USNM [no abdomens]).

Zodia rutilella (Walker), NEW COMBINATION

Simaethis rutilella Walker, 1863:453.

The maculation of this species is similar to the preceding species but the white spots have a metallic blue iridescence instead of green or gold and the dorsal margin white spot is absent.

Description.—Size 4.5 mm forewing length. Maculation as in *Z. plutusana* but the spots of the forewing have blue-metallic iridescence and the dorsal margin white spot is absent. Male and female genitalia unknown (abdomen missing).

Type-locality.—Ega [=Tefé], Amazonas, Brasil.

Type.—Holotype ♀, data as above, Bates Coll. (BMNH).

Material examined.—The holotype is unique.

Zodia chrysosperma (Meyrick), NEW COMBINATION
Figs. 6–7

Brenthia chrysosperma Meyrick, 1931:183.

This species is relatively small. It is similar to the other species but has a hook-like spine on the apex of the male valvae.

Description.—Size 4 mm forewing length. Like *Z. plutusana* but with a metallic green iridescent area at the end of the cell of the forewing. Male genitalia as in *Z. plutusana* but with the dorsal margin relatively straight and without a setal field (Fig. 6); apex with a large hook-like spine; aedeagus as in *Z. plutusana* but more elongate (Fig. 7). Female genitalia unknown.

Type-locality.—Teffé [=Tefé], Amazonas, Brasil.

Types.—Lectotype ♂ (BMNH) (designated by Clarke, 1969), data as above, 19 Dec, H. H. Parish; B.M. Genitalia Slide JFGC 6550. *Paralectotype:* 1 ♂, same data, 20 Jan, H. H. Parish (USNM).

Discussion

It is conceivable that *Zodia ochripalpis, Z. rutilella,* and *Z. chrysosperma* may represent only one species but until more material is available and genitalia are examined, this cannot be conclusively determined. The situa-

tion in *Zodia* is typical of innumerable groups of tropical Lepidoptera where cryptic species have been named on the basis of one or the other sex, making further elucidation of valid names impossible until more collections are made.

Acknowledgments

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